TECHNIQUE FOR THE DISSECTION OF SERICA

In the genus *Serica* one encounters a wealth of species feebly marked by external characters, but strongly differentiated by the structure of the male genital armature. Hence it is often necessary, and always desirable, to remove and mount the armature along with the specimen to serve as an aid in the determination of the species, and later in its recognition. It usually happens that specimens are pinned and labelled long before thought is given to their identification or to the special technique of their proper display for study. Notes, then, on a method of handling such material without injury to the specimens or to the labels should be helpful to students of the genus. Some of the suggestions which follow may be of value in handling other types of insects as well.

The labels accompanying the specimens to be dissected should first be removed and placed on a thinner, ("O" or "OO") insect pin and locked into position by a slip of paper bearing a serial number, written in pencil. A duplicate number label should be placed upon the pin from which the data labels were removed. By so handling specimens, one at a time, some 20–30 sets of labels may be removed and filed in order on the pin, later to be correctly returned to the specimens from which they came.

The specimen to be relaxed is then immersed in a glass of water, (preferably distilled, or at least soft) to which 5–10% of alcohol has been added. Usually within 24 hours the specimen will be pliable and ready for dissection. To insure a clean, beautiful specimen, showing almost all of the original lustre and iridescence, first brush it with a soft camel's hair brush *under* water. Then remove the pin, and gently wipe the elytra dry with a soft linen handkerchief. During the dissection the specimen should be held back downward between the thumb and finger with the soft linen cloth between the finger and the elytra. The dissection, though simple, should be done under the low power of a binocular microscope. The chief instrument needed is best home made by taking a thin, limber, white insect pin

(the old style) pushing it through a small piece of cork, to serve as a handle, and buckling the point against a hard surface to form a delicate grab-hook. With this hook lift the pygidium, break the ventral membranes connected to it, and fish out the armature. Drop it in water while repinning the specimen with a larger sized pin than that originally used. Push the specimen above the level desired on the pin, rub a little duco, or white shellac, on the pin at the correct level (one-third down from the head of the pin) and push the specimen down to position. Thus it may be as nearly and firmly attached to the pin as in the original mounting.

The genital armature should be mounted under the specimen, projecting to the left. For this purpose cardboard points punched from three-ply Reynolds bristle board are best. By aid of the binocular and the little grab-hook remove all adhering dirt and membranes from the armature, flex the claspers if possible into a normal position, and attach the open, basal end of the armature to the tip of the cardboard point with duco or white shellac. The original data labels should go on the pin below the cardboard holding the armature. The larger size of the pin used in remounting the specimen will cause the labels to stand as firmly in position as they did originally.

Occasionally a specimen, due to previous treatment or to the nature of the abdominal contents, will not relax sufficiently to permit the operation just described without risk of injury to the armature and the pygidium. A satisfactory modification of the technique in such cases is to remove the whole abdomen. To accomplish this, rupture the membrane connecting the first abdominal sternite with the thorax by pushing the curved tip of the little grab-hook through it in several places, then dislodge the abdomen by tension from the hook. Remove the armature through the open basal end of the abdomen, place a drop of glue in the specimen, and reset the abdomen in position. This operation can be accomplished so successfully that even a binocular microscope will reveal no trace of the manipulation. The first, simpler method, however, should be employed for all specimens which will relax readily.

A few comments upon the comparative advantages of the method above outlined may be desirable. In the first place, soaking the specimens in water rather than slowly relaxing them in a moist chamber is to be preferred because complete relaxation can be secured before the pins rust or corrode, and before mold or decay can cause injury. Further, highly soluble substances in the specimens will largely go into solution and diffuse out into the glass of water. In a moist chamber they could not escape from the specimen and would in part collect on the surface in drying, with a resulting injury to the lustre and iridescence. Many specimens are dirty when first mounted, and accumulate more dirt afterward. The appearance and usefulness of such specimens is greatly enhanced by washing them in water.—R. W. DAWSON, University of Minnesota.

Principles of Insect Morphology. By R. E. Snodgrass, United States Department of Agriculture, Bureau of Entomology and Plant Quarantine, 1st ed., 8 vo., cloth, 667 pages, 319 illustrations, New York, McGraw-Hill Co., 1935, $6.00.

Written by an international authority on insect morphology, this book has been a number of years in course of preparation, and its issuance is a real event in scientific circles. Designed as a guide on insect structures, the book presents the latest developments and ideas on insect morphology (including embryology and histology) and physiology. There has been brought together here under one cover a large body of valuable and significant material which otherwise could be obtained only from widely scattered scientific journals and other publications written in many languages. Primarily morphological in approach, particular attention is given to structural relationships of insects, annelids, and arthropods, the evolution of organs within the various groups, and correlation of structure with functions where possible. Some idea of the general plan and scope of this work may be gained by enumeration of the subject subdivisions: general organization and development; the body wall and its derivatives; body regions; sclerites, and segmentation; the segmental appendages of arthropods; the head; the head appendages; the thorax; the thoracic legs; the wings; the abdomen; the organs of inges-